

III. AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes changes to Figure 2. This sheet, which includes Figures 1 and 2, replaces the original sheet including Figures 1 and 2. In Figure 2, elements "2", "4", "6" and "8" have been relabeled as elements --8--, --6--, --4--, and --2--, respectively, to reflect the fact that Figure 2 illustrates an upside down view of the subject matter shown in Figure 1.

Attachment: One Replacement Sheet
 One Annotated Sheet Showing Changes

IV. REMARKS

The specification has been amended to incorporate changes made by Preliminary Amendment (A), filed December 20, 2004, and by Amendment (B), filed June 18, 2007, and to incorporate by reference U.S. Patent 6,587,175, which is the U.S. Patent equivalent of International Patent Application No. WO 99/41638 (See, e.g., Section No. 87 on face of U.S. Patent 6,587,175). The specification has also been amended to incorporate subject matter from original claims 1-13, and to correct a typographical error in these original claims.

A substitute specification in compliance with 37 C.F.R. §1.125 is attached. The attached substitute specification contains no new matter.

The drawings have been amended to re-label mislabeled elements in Figure 2 so as to correspond to Figure 1. Figure 2 is an upside down view of the device shown in Figure 1.

Claims 14 and 21 have been amended, and new claims 33-38 have been added. Specifically, independent claims 14 and 21 have been amended to improve grammar and clarity, which has no further limiting effect on the scope of these claims. Claims 14 and 21 have also been amended to recite “the electrodes are flush with an edge of the front substrate and with an edge of the back substrate respectively, and define lateral electric contact zones” as supported on page 7, lines 8-14, of Applicants’ specification as originally filed. Claims 14 and 21 have also been amended to recite “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path” as shown in Figures 5, 6 and 7 of Applicants’ disclosure as originally filed.

New claims 33 and 34 depend upon claims 14 and 21, respectively, and further recite “the contact means is disposed on an exterior surface of the cell” as shown in Figures 5, 6 and 7 of Applicants’ disclosure as originally filed. New claims 35 and 36 depend upon claims 14 and 21, respectively, and additionally recite “the back substrate is disposed between the

contact means and the front substrate of the cell” as supported by Figures 5, 6 and 7 of Applicants’ disclosure as originally filed. New claims 37 and 38 depend upon claims 14 and 21, respectively, and further recite “wherein the contact means is disposed on a side of the cell” as shown in Figure 7 of Applicants’ disclosure as originally filed.

The present amendment adds no new matter to the above-captioned application.

Claims 14-36 are pending. Claims 30 and 32 have been withdrawn because they pertain to non-elected subject matter. Applicants respectfully request that claim 32 be rejoined with the base claim once it has been allowed because claim 32 incorporates all of the subject matter of the generic base claim 14.

A. The Invention

The present invention pertains broadly to a display cell such as may be used as a display device for an electronic device. In accordance with an embodiment of the present invention, an electro-optical display cell is provided that includes features recited by independent claim 14. In accordance with another embodiment of the present invention, a multi-layered liquid crystal display cell is provided that includes features recited by independent claim 21. Various other embodiments, in accordance with the present invention, are recited by the dependent claims.

An advantage provided by the display cell embodiments of the present invention is that these devices include conductive paths that are reliably formed and that exhibit good electrical conductivity even in places where they match the back edge of the cell.

B. The Rejections

Claims 14-17, 19, 20 and 31 stand rejected under 35 U.S.C. § 102(b) as anticipated by Atsushi (JP Document No. 56-075,624, hereafter the “Atsushi Document”). Claims 21, 23

and 25 stand rejected under 35 U.S.C. § 102(e) as anticipated by Mandai et al. (U.S. Patent Application Publication No. 2001/0015788, hereafter the “Mandai Publication”).

Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kozuka et al. (U.S. Patent Application Publication No. 2001/0046021, hereafter the “Kozuka Publication”). Claim 22, 24 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Kuroki et al. (U.S. Patent Application Publication No. 2002/0051102, hereafter the “Kuroki Publication”). Claim 27 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Kuroki Publication. Claim 28 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Atsushi Document in view of Wada (U.S. Patent Application Publication No. 2002/0019069, hereafter the “Wada Publication”). Claim 29 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the Mandai Publication in view of the Wada Publication.

Applicants respectfully traverse the Examiner’s rejections and request reconsideration of the above-captioned application for the following reasons.

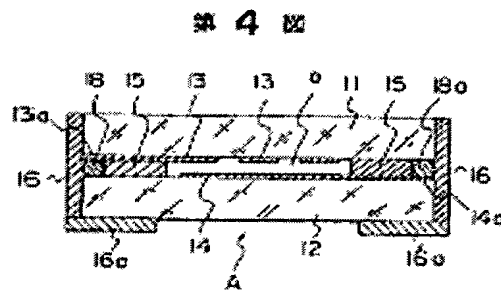
C. Applicants’ Arguments

i. The Section 102 Rejection

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claims. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has failed to establish a prima facie case of anticipation against the claimed invention because both the Atsushi Document and the Mandai Publication fail to teach each and every limitation as arranged as in the claims.

ii. The Atsushi Document

The Atsushi Document discloses “production of photoelectric display cell” wherein the photoelectric display cell, as shown in Figure 4 (reproduced below for convenience), includes base plates (11) and (12), sealing material (15) printed and dried on the lower peripheral portion of base plate (11) without applying sealing material to liquid crystal inlet (17), and conductive paste layers (18) and (18a) printed on the opposed portion between the upper portion of lead terminal (13a) of segment electrode (13) and lead wire (14a) of common electrode (14) on the lower base plate (12) so as to have the same thickness as sealing material (15), (See Patent Abstracts of Japan, of record, corresponding to the Atsushi Document). As shown in Figure 4, both base plates (11) and (12) are connected to form cell vessel (A), and conductive paste (16) is printed and dried in the same width as conductive paste layers (18) and (18a) in order to prevent conductive paste layers (18), (18a) and (16) from short circuiting between adjoining layers and defective connection of lead wires (See Patent Abstracts of Japan corresponding to the Atsushi Document).



More specifically, the Atsushi Document discloses, according to Figure 4, at least one transparent front substrate (11) whose top surface forms the front face of the cell, and at least one back substrate (12) that may also be transparent or not, and whose lower surface forms the back face of the cell. The Atsushi Document also discloses that a sealing frame (15) is provided to join the front and back plates (11), (12) and that defines a volume for retaining an electro-optically or photo-electrically active medium in a sealed manner (i.e., liquid crystal

(A)). The Atsushi Document discloses that the front and back substrates (11) and (12) include on their faces, opposing each other, at least one electrode (13), (14) that are intended to be connected by the conductive paste (16) to an electrical power or control circuit and that define lateral electric contact zones. The Atsushi Document discloses that each conductive path (16) is formed of a first part (i.e., see “16” in Figure 4) in contact with the electrodes at the level of the lateral electric contact zones, and a second part (i.e., see “16a” in Figure 4) shown extending over the back surface of the cell.

However, the Atsushi Document does not teach, or suggest, that the conductive paste layers (18a) shown in Figure 4 are arranged continuously or discontinuously over the edge, or the back, or the edge and the back, of the cell thereby forming the electrical junction between the first and second parts of the conductive paths. Thus, the Atsushi Document does not teach, or even suggest, (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path” as recited by independent claims 14 and 21.

On the contrary, the Atsushi Document discloses that “contact means” (18a), as shown in Figure 4, are disposed between the front and back base plates (11) and (12). The present invention, as recited by independent claims 14 and 21, requires that the “contact means” be arranged over the edge and/or the lower surface of the back substrate forming the back face of the cell. For a non-limiting example, Applicants direct the Examiner’s attention to Figure 5 of Applicants’ disclosure, which illustrates a “contact means” (42) arranged on the “edge” (27) and/or lower surface (31) of the back substrate (22) forming the back face of the cell (18). Furthermore, the “contact means” (18a) of Atsushi does not form “an electrical junction disposed between the first part and the second part of each conductive path” as recited by claims 14 and 21.

A person of ordinary skill in the art would understand from the disclosure of the Atsushi Document that the only role played by “contact means” (18a), according to Atsushi, is to increase the area of the lateral electric contact zone formed by electrode (14). In fact, the thickness of this lateral electric contact zone, as illustrated by Figure 4 of Atsushi, corresponds to the thickness of the electrode (14) and the contact means (18a) so that the electric contact between electrode (14) and the first part (16) of the conductive path is improved.

A person of ordinary skill in the art would also understand from the disclosure of the Atsushi Document that the cell disclosed by Atsushi has the disadvantage described on page 3, lines 9-16, of Applicants’ specification. Specifically, the first part (16) and second part (16a) of the conductive paths deposited around the sharp back edge of the cell are thin, and therefore have low mechanical strength. As a consequence of this thin structure deposited around the sharp back edge, the conductive paths are easily scratched and interrupted thereby compromising electrical conduction continuity and reliability.

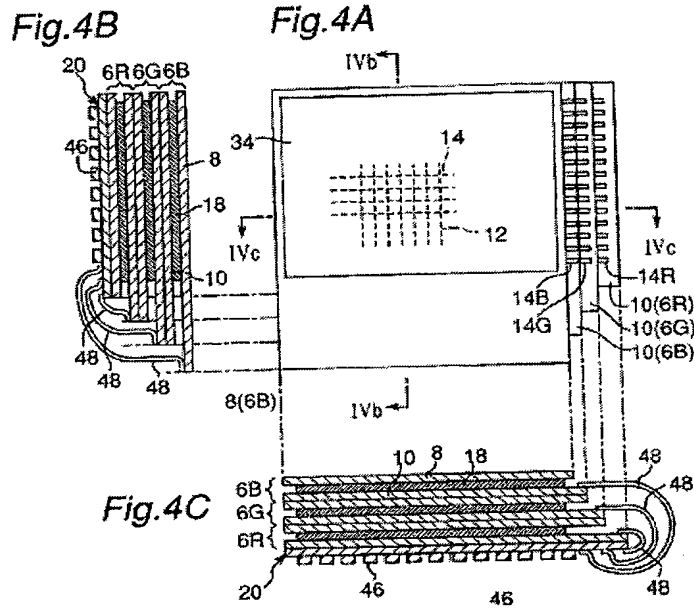
The Atsushi Document also does not teach, or suggest, (ii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, and (iii) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36. As shown in Figure 4 of the Atsushi Document, the conductive paste layer (18a) is disposed in the interior of the cell and the conductive paste layer (18a) is disposed between the front and back base plates (11) and (12).

For all of the above reasons, the Atsushi Document cannot anticipate the subject matter of independent claims 14 and 21, or the subject matter of new claims 33-38.

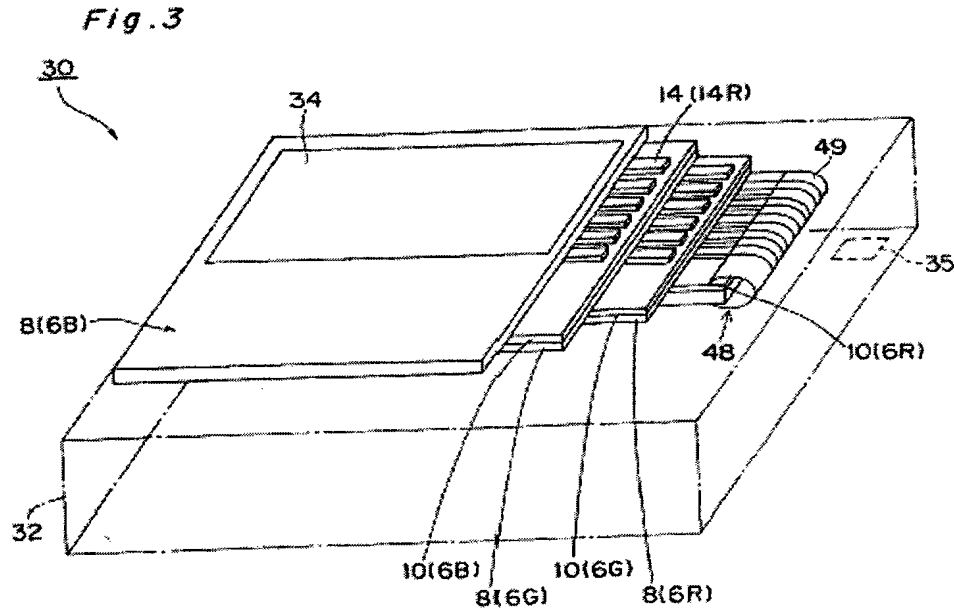
iii. The Mandai Publication

The Mandai Publication discloses a “displaying system for displaying information on a display,” which pertains to a liquid crystal display that includes first and second substrates (8), (10) wherein the first substrate (8) has a surface supporting thereon a plurality of parallel first electrodes (12) and the second substrate (10) has a first surface and second surface opposed to the first surface (See Abstract of the Mandai Publication, and Figures 1 and 2). The Mandai Publication discloses that the first surface supports thereon a plurality of parallel second electrodes (14), wherein the second substrate (10) is positioned so that the first surface opposes the surface of the first substrate to define a gap therebetween and the first and second electrodes cross with each other (See Abstract of the Mandai Publication, and Figure 2). The Mandai Publication further discloses that a memory type liquid crystal (18) is filled in the gap as shown in Figure 4B, and a plurality of first and second terminals are positioned on the second surface and electrically connected with the first and second electrodes, respectively, so that the first and second terminals are capable of being connected with an external device (See Abstract of the Mandai Publication and ¶ [0052]).

With reference to Figures 4B and 4C of the Mandai Publication, which are reproduced below for the Examiner’s convenience, a person of ordinary skill in the art would instantly appreciate that the structure the Examiner contends is the “first part of the conductive path” and the structure the Examiner contends is the “second part of the conductive path” (See, Office Action, dated November 15, 2007, at 6) are integrally formed (i.e., are the same component) so that there is no “contact means...forming an electrical junction disposed between the first part and the second part of each conductive path” as recited by independent claims 14 and 21. However, this is not the only deficiency in the disclosure of the Mandai Publication.



The Mandai Publication also does not teach, or even suggest, (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path” as recited by independent claims 14 and 21. Furthermore, the Mandai Publication does not teach, or suggest, (ii) “the electrodes are flush with an edge of the front substrate and with an edge of the back substrate respectively, and define lateral electric contact zones” as recited by claims 14 and 21. As evident from Figures 3 (reproduced below for the Examiner’s convenience) and 4A (reproduced above for the Examiner’s convenience) of the Mandai Publication, the electrodes (12), (14) are not flush with an edge of the substrates (8) and (10).



The Mandai Publication also does not teach, or suggest, (iii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, and (iv) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36. Specifically, the Examiner contends that the location where “flexible substrate” (48) contacts the substrate (10) is a “contact means” when this term is given its broadest reasonable interpretation consistent with Applicants’ specification (Office Action, dated July 2, 2008, at 10, lines 13-17). Assuming *arguendo* that the Examiner’s interpretation of the Mandai Publication’s “contact means” is valid (which is not a correct assumption), this “contact means” would be disposed on an interior surface of the cell and not on an “exterior surface” as shown in Figures 4B and 4C. Furthermore, as shown in Figures 4B and 4C of the Mandai Publication, the “back substrate” (20) is not disposed between the “contact means” and the “front substrate” (8).

For all of the above reasons, the Mandai Publication cannot anticipate the subject matter of independent claims 14 and 21, or the subject matter of new claims 33-38.

iv. The Section 103 Rejections

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation, or other reason, for combining the references in the manner claimed. KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1739-41 (2007); In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In this case, the Examiner has failed to establish a prima facie case of obviousness against the claimed invention because neither the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, nor the Wada Publication, either alone or in combination, teaches or suggests (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path” as recited by independent claims 14 and 21, (ii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, (iii) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36, and (iv) “the contact means is disposed on a side of the cell” as recited by claims 37 and 38.

v. The Atsushi Document

The disclosure of the Atsushi Document is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 7, lines 14-15; at 8, lines 6-7; and at 9, lines 10-12), the Atsushi Document does not teach, or suggest, (i) “the contact means take the form of a tape of anisotropic conductive material” as recited by claim 18; (ii) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claims 22, 24, 26 and 27; and (iii) “a transparent or coloured absorbent layer for relaxing thermo-

mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claims 29 and 30.

vi. The Mandai Publication

The disclosure of the Mandai Publication is discussed above. As admitted by the Examiner (Office Action, dated November 15, 2008, at 8, lines 17-18; and at 10, lines 2-4), the Mandai Publication does not teach, or suggest, (i) “a power circuit or the control circuit is mounted on the back of the cell” as recited by claim 27; and (ii) “a transparent or coloured absorbent layer for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell” as recited by claim 29.

vii. The Kozuka Publication

The Kozuka Publication discloses a “conductive particle to conductively bond conductive members to each other, an anisotropic adhesive containing the conductive particle, a liquid crystal display device using the anisotropic conductive adhesive, [and] a method for manufacturing the liquid crystal display device” (See Abstract of the Kozuka Publication).

viii. The Kuroki Publication

The Kuroki Publication discloses a “display device, manufacturing method thereof and image terminal unit employing the same” (See Abstract of the Kuroki Publication).

ix. The Wada Publication

The Wada Publication discloses an “optical element and method of manufacturing the same, and electronic instrument” (See Abstract of the Wada Publication).

x. Summary of the Disclosures

The Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, (i) “contact means arranged continuously or discontinuously over an edge, or back, or the edge and the back, of the cell thereby forming an electrical junction disposed between the first part and the second part of each conductive path” as recited by independent claims 14 and 21, (ii) “the contact means is disposed on an exterior surface of the cell” as recited by claims 33 and 34, (iii) “the back substrate is disposed between the contact means and the front substrate of the cell” as recited by claims 35 and 36, and (iv) “the contact means is disposed on a side of the cell” as recited by claims 37 and 38. Therefore, the Examiner has failed to establish a prima facie case of obviousness against the subject matter of independent claims 14 and 21 and the dependent claims.

V. CONCLUSION


The Examiner has failed to establish either a prima facie case of anticipation, or of obviousness, against claims 14-29 and 31-38 because the Atsushi Document, the Mandai Publication, the Kozuka Publication, the Kuroki Publication, and the Wada Publication, either alone or in combination, still fail to teach, or even suggest, each and every limitation of the claims arranged as in the claims.

For all of the above reasons, claims 14-29 and 31-38 are in condition for allowance and a prompt notice of allowance is earnestly solicited. Furthermore, while claim 32 pertains to subject matter of a non-elected species, claim 32 should be rejoined with generic claim 14.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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